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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/469,190	12/21/1999	KATSUHIKO HIEDA	04329.2210	4681

22852 7590 09/24/2002

FINNEGAN, HENDERSON, FARABOW, GARRETT &
DUNNER LLP
1300 I STREET, NW
WASHINGTON, DC 20006

EXAMINER

VU, HUNG K

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 09/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/469,190

Applicant(s)

HIEDA ET AL. *Um*

Examiner

Hung K. Vu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10, 15, 19 and 24-30 is/are pending in the application.
- 4a) Of the above claim(s) 10, 15 and 24-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 16.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 06/27/02 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/469,190 is acceptable and a CPA has been established. An action on the CPA follows.

Response to Amendment

2. Amended claims 10 and newly submitted claims 25-30, filed on 06/27/02, incorporate the new limitations (a capacitor lower electrode including a bottom portion formed on the conductive plug and a cylindrical-type wall contacting the bottom portion to surround the bottom portion, a capacitor upper electrode formed above an inner wall of the cylindrical-type wall and the bottom portion of the capacitor lower electrode via the capacitor insulating film, capacitor insulating film formed on surfaces of an inner wall, an outer wall, and the bottom portion of the capacitor lower electrode, and a capacitor upper electrode formed above the inner wall, the outer wall, and the bottom portion of the capacitor lower electrode via the capacitor insulating film) which are not belong to the elected species of embodiment 5, Figures 8A-8B. Therefore, claims 1-10, 15, 17-18 and 20-30 are being withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention.

3. Applicants request to exam the amended claim 19, filed on 01/14/02, as readable on elected embodiment 5, Figures 8A-8B, is acknowledge.

Drawings

4. Figures 15 and 16 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation (a lower electrode having a side and upper surface, wherein a surface area of the side being larger than a surface area of the upper surface) is not supported by the original specification and/or drawings.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 19, insofar in compliance with 35 USC 112, is rejected under 35 U.S.C. 102(b) as being anticipated by Kashihara et al. (PN 5,567,964, of record).

Kashihara et al. discloses, as shown in Figure 14, a semiconductor device comprising,

- a semiconductor substrate (31);
- a conductive plug (43a) formed on the semiconductor substrate;
- a lower electrode (1) formed in contact with the conductor plug and having a side and upper surface;
- a capacitor insulating film (11d) formed on a side of the lower electrode;
- an upper electrode (5) formed above the lower electrode via the capacitor insulating film,
- the capacitor insulating film (11d) being formed above a top surface of the lower electrode via a second insulating film (3, which is ZrO_2 , TiO_2 or Ta_2O_5) different from the capacitor insulating film (11d, which is silicon nitride film or a silicon oxide film). Note Col. 17, lines 29-46 of Kashihara et al..

Response to Arguments

7. Applicants' arguments filed 01/14/02 and 06/27/02 have been fully considered but they are not persuasive.

It is argued, at pages 3 and 4 of the Remarks, filed 01/14/02, that Kashihara et al. does not disclose the lower electrode having side and upper surfaces, a surface area of the side being larger than a surface area of the upper surface. This argument is not convincing because the limitation (a surface area of the side being larger than a surface area of the upper surface) is not support by the specification and/or drawings.

It is argued, at page 4 of the Remarks, filed 01/14/02, that Kashihara et al. does not disclose the capacitor insulating layer being formed above a top surface of the lower electrode layer 1 via a second insulating film different from the capacitor insulating film. This argument is not convincing because Kashihara et al. teaches, as shown in Figure 14, the capacitor insulating layer (11d) being formed above a top surface of the lower electrode layer (1) via a second insulating film (3, which is ZrO_2 , TiO_2 or Ta_2O_5) different from the capacitor insulating film (11d, which is silicon nitride film or a silicon oxide film).

The rejection of claims 10, 15 and 24 under 35 USC 103(a) as unpatentable over Kashihara in view of Nishioka and the rejection of claims 10, 14, 15 and 24 under 35 USC 103(a) as unpatentable over Yamamichi in view of Nishioka are accordingly withdrawn.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 7:00-5:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

September 19, 2002

Hung Vu